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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/743,725

12/24/2003

Koichi Takahashi

12706/8

8318

7590

11/30/2005

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EXAMINER

STAFIRA, MICHAEL PATRICK

ART UNIT

PAPER NUMBER

2877

DATE MAILED: 11/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/743,725

Applicant(s)

TAKAHASHI ET AL.

Examiner

Michael P. Stafira

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 12-16, 18-19 is/are rejected.
- 7) ☒ Claim(s) 6-11 and 17 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. ____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12/24/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-5, 12, 16 are rejected under 35 U.S.C. 102(b) as being anticipated by GB 2 266 366 A.

Claim 1

GB 2 266 366 A discloses a light source (Fig. 1, Ref. 1) that irradiates light onto a reflective surface (Fig. 1, Ref. 13) for detection provided on said detection object; an optical path splitting element (Fig. 1, Ref. 7) that splits an optical path of reflected light that has been reflected by said reflective surface (Fig. 1, Ref. 13) for detection; and a plurality of optical detectors (Fig. 1, Ref. 11) that each receive a luminous flux split by said optical path splitting element (Fig. 1, Ref. 7), and each independently detect an inclination angle of said reflective surface for detection (See Fig. 1; dotted lines & solid lines).

Claim 2

GB 2 266 366 A further discloses each luminous flux has a different amount of movement on light receiving surfaces of said plurality of optical detectors (Fig. 1, Ref. 11) relative to an amount of change in the inclination angle of said detection object (See Fig. 1; dotted lines & solid lines).

Claim 3

GB 2 266 366 A further discloses each optical path from said reflective surface (Fig. 1, Ref. 7) for detection to light receiving surfaces of said plurality of optical detectors (Fig. 1, Ref. 11) has a different length (Light reflected over the entire length of the splitter (7) are going to have different lengths from shorter to longer).

Claim 4

The reference of GB 2 266 366 A further discloses the plurality of optical detectors each have different sensitivity characteristics in angle detection (See Abstract; CCD array wavelength or phase varying with the angle of light).

Claim 5

The reference of GB 2 266 366 A further discloses the optical path splitting element comprises a beam splitter (Fig. 1, Ref. 7) provided with an optical path splitting surface that splits said optical path into an optical path of reflected light and an optical path of transmitted light (See Fig. 1).

Claim 12

GB 2 266 366 A further discloses the optical path splitting element comprises a flat plate (Fig. 1, Ref. 7).

Claim 16

GB 2 266 366 A discloses one of said plurality of optical detectors comprises a two-dimensional position detection light receiver (Fig. 1, Ref. 11; CCD).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 13, 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over GB 2 266 366 A.

Claims 13, 14

GB 2 266 366 A discloses the claimed invention except for the optical splitter is a polarization beam splitter of nitrate material with a 1.7 index of refraction. It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine GB 2 266 366 A with the polarization beam splitter since it was well known in the art that using a polarization beam splitter with a specific index of refraction increases the sensitivity of the measurement by reducing the amount of background noise.

5. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over GB 2 266 366 A in view of JP 08-227552.

Claim 15

GB 2 266 366 A substantially teaches the claimed invention except that it does not show a four section light receiver. JP 08-227552 shows that it is known to provide a four section light receiver for an optical device measuring inclination. It would have been obvious to combine the device of GB 2 266 366 A with the four section light receiver of JP 08-227552 for the purpose of

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providing a receiving surface that responds to different light intensities, therefore increasing the accuracy of the measured light.

6. Claim 18 is rejected under 35 U.S.C. 102(e) as being anticipated by 2002/0093723.

Claim 18

2002/0093723 discloses a light deflection element (Fig. 30, Ref. 2716) that switches optical paths of the optical signals; a reflective surface (Fig. 30, Ref. 2802) for detection for detecting a deflection angle of the light deflection element that is provided integrally with the light deflection element (See Fig. 30); the angle detection apparatus (Page 1, Para. 0018) according to claim 1 that detects the deflection angle using the light deflection element as a detection object (See Fig. 30); and a deflection angle control unit (Page 16, Para. 0269-0274) that controls a deflection angle of said light deflection element using a deflection angle detected by said angle detection apparatus.

7. Claim 19 is rejected under 35 U.S.C. 102(e) as being anticipated by 2003/0053742.

Claim 19

2003/0053742 discloses a light source (Fig. 1, Ref. 1) that emits luminous flux; an optical system that forms an image of said luminous flux on said recording surface (See Fig. 21) of said recording medium; a light deflection element (Fig. 1, Ref. 6) that is located within the optical system and that deflects said luminous flux onto said recording surface (See Fig. 21) within a parallel surface, and has a reflective surface (Fig. 1, Ref. 6) for detection whose inclination angle changes in synchronization with a deflection angle; and the angle detection apparatus according

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to claim 1 that detects the inclination angle using the light deflection element as a detection object (Para. 0049).

Allowable Subject Matter


8. Claims 6-11, 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael P. Stafira whose telephone number is 571-272-2430.

The examiner can normally be reached on 4/10 Schedule Mon.-Thurs..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Toatley can be reached on 571-272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Michael P. Stafira
Primary Examiner
Art Unit 2877